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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/505,406	03/28/2005	Satoshi Okada	0717-0525PUS1	8973

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EXAMINER	
AMIN, JWALANT B	
ART UNIT	**PAPER NUMBER**
2676	

DATE MAILED: 01/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/505,406	OKADA, SATOSHI	
	Examiner	Art Unit	
	Jwalant Amin	2676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 March 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 August 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☒ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 8/24/04
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Should applicant desire to obtain the benefit of foreign priority under 35 U.S.C. 119(a)-(d) prior to declaration of an interference, a translation of the foreign application should be submitted under 37 CFR 1.55 in reply to this action.

Drawings

2. Figures 10-14 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities: there is not proper spacing between words throughout the disclosure making it difficult to read, for instance: the term "colorelement" on page 2 line 10 does not have proper spacing between the words "color" and "element"; the term "5ehas" on page 42 line 13 does not

have proper spacing between the words "5e" and "has". There are numerous such examples throughout the disclosure.

Appropriate correction is required.

4. The disclosure is objected to because of the following informalities: the term ""5", "2", and "1"" on page 9 line 17 is mistyped. The term should be ""4", "2", and "1"" (see Fig. 10, correction pattern 2).

Appropriate correction is required.

5. The disclosure is objected to because of the following informalities: the element represented by the term "display device 10" occurring on page 11 line5, page 12 line 3 and page 54 line 10 is not specified in any of the figures. The term should be "display device 3".

Appropriate correction is required.

Claim Objections

6. Claim 3 is objected to because of the following informalities: the term "basic pattern" in page 63 lines 8—9 is an inconsistent terminology. For prior art rejection, the examiner interprets the term as "basic portion". Appropriate correction is required.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 1, 6, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lui et al. (US Patent No. 6,339,426; hereinafter referred to as Lui), and further in view of Koyama (US Pub. No. 2002/0093502).

9. Regarding claims 1, 6, 7 and 8, Lui teaches a method for displaying a character on a character display apparatus, a program for executing character display apparatus, and a recording medium (Fig. 5A, col. 8 lines 49-51, col. 8 lines 24-28, col. 31 lines 60-65; machine readable medium corresponds to a recording medium storing a program; program modules being executed corresponds to a program for causing a character display apparatus to execute a character display process; exemplary apparatus corresponds to character display apparatus; various methods of the present invention corresponds to a method for display a character) comprising: a display device comprising a plurality of pixels (col. 2 lines 31-33; LCD screen corresponds to display device; pixels arranged in plurality corresponds to plurality of pixels); and a control section for controlling the display device (col. 11 lines 23-26, lines 55-61; graphics display interface process, a part of an operating system corresponds to control section;

the processed pixel ... sent to the display corresponds to controlling the display device), wherein each of the plurality of pixels comprises a plurality of sub-pixels arranged in a predetermined direction, and at least one of a plurality of color elements is assigned to each of the plurality of sub-pixel (col. 2 lines 9-15, lines 18-27; non-square elements/sub-pixel element corresponds to sub-pixels; pixel element corresponds to pixels; RGB sub-pixel element corresponds to one of a plurality of color elements; each pixel element ... three non-square elements corresponds to each of the plurality of pixels comprising a plurality of sub-pixels; one direction/vertical stripes/horizontal stripes corresponds to predetermined direction; a series of RGB sub-pixel elements corresponds to color elements assigned to each of the plurality of sub-pixel); the control section determines at least one sub-pixel to which a basic portion indicating a skeleton of a character is assigned, among the plurality of sub-pixels in the display device, based on character shape data indicating character shapes (col. 11 lines 6-19, lines 39-42, col. 18 lines 54-63; the GDI process corresponds to the control section; same portion/corresponding portion corresponds to basic portion; the GDI process uses display information corresponds to the control section determines; the same portion of an image is used to determine ... to be used with each of the red, green and blue ... scaled image is mapped corresponds to determines at least one sub-pixel to which a basic portion indicating a skeleton of a character; scaled character outline corresponds to skeleton of a character; glyph/bitmap image corresponds to arrangement pattern; overscaled geometry/character information corresponds to character shape data; character corresponds to character shape; representing corresponds to indicating;

overscaled geometry representing a character corresponds to character shape data indicating character shapes); a first pixel of the plurality of pixels comprises a plurality of first sub-pixels (Fig. 1, Fig. 6, col. 2 lines 9-15, lines 18-27; col. 19 lines 1-4; pixel element (RN, CN) corresponds to pixels; RGB sub-pixel element corresponds to plurality of sib-pixels; (R(N), C(N)) corresponds to first pixel; the red, green and blue sub-pixel elements of a pixel corresponds to a first pixel of the plurality of pixels comprising a plurality of first sub-pixels); at least one pixel neighboring the first pixel comprises a plurality of second sub-pixels (Fig. 1, Fig. 6, col. 2 lines 9-15, lines 18-27; col. 19 lines 1-4; pixel element (RN, CN) corresponds to pixels; RGB sub-pixel element corresponds to plurality of sib-pixels; (R(N+1), C(N)) corresponds to at least one pixel neighboring the first pixel (R(N), C(N)); (R(N+1), C(N)) with non-square elements corresponds to pixel neighboring the first pixel comprising a plurality of second sub-pixels); the control section determines an arrangement pattern containing a plurality of elements (Fig. 8, Fig. 19, col. 12 lines 34-35, col. 18 lines 54-63, col. 19 lines 4-10, col. 20 lines 53-67, col. 21 lines 1-3; Graphic Display Interface process including the scan conversion process corresponds to the control section; bitmap image corresponds to an arrangement pattern; bits of bitmap corresponds to plurality of elements; the scan conversion process ... scaled image can be mapped corresponds to the control section determines an arrangement pattern containing a plurality of elements); and the control section determines a luminance level of the first pixel based on the arrangement pattern (col. 18 lines 54-63, col. 19 lines 27-30; Graphic Display Interface process including the scan conversion process corresponds to the control section; bitmap image/image

corresponds to an arrangement pattern; pixels corresponds to plurality of elements; a pixel element corresponds to the first pixel; the element; luminous intensity values corresponds to values; luminance intensity levels corresponds to luminance level; the same portion of an image ... a pixel element into which a portion of the scaled image is mapped corresponds to determines a luminance level of the first pixel based on the arrangement pattern).

Lui discloses all of the claimed limitations as stated above, except that value of each of the plurality of elements is determined depending on whether or not the basic portion is assigned to a corresponding sub-pixel of the plurality of first sub-pixels and the plurality of the second sub-pixels. However, Koyama teaches a bitmap formed of bits and determining the value of a sub-pixel for the basic portion when the bit has a value of "1" (pg. 8 [0156], [0158], [0160] last 8 lines, [0161] last 6 lines; bitmap corresponds to arrangement pattern; each bit corresponds to plurality of elements; each bit which forms the bitmap has a value of "1" or "0" corresponds to value of each of the plurality of elements; three sub-pixels corresponds to plurality of first sub-pixels; when the bit D(x,y) ... sub-pixel for the basic portion/it is determined whether or not ... pixel is "1" corresponds to value of each of the plurality of elements is determined depending on whether or not the basic portion is assigned to a corresponding sub-pixel of the plurality of first sub-pixels and a plurality of second sub-pixels). Therefore, it would have been obvious to one of ordinary skill in the art at the time the present invention was made to use the relation between the bits and the basic portion assigned to a corresponding

sub-pixel as taught by Koyama into the system of Lui to determine the value of each bit of the bitmap, and thus displaying a character with high quality and high definition.

10. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lui and Koyama, and further in view of Desai (US Patent No. 6,282,328).

11. Regarding claim 2, Lui teaches the control section that determines a luminance level of the first pixel based on an arrangement pattern (col. 18 lines 54-63, col. 19 lines 27-30; Graphic Display Interface process including the scan conversion process corresponds to the control section; bitmap image/image corresponds to an arrangement pattern; pixels corresponds to plurality of elements; a pixel element corresponds to the first pixel; the element; luminous intensity values corresponds to values; luminance intensity levels corresponds to luminance level; the same portion of an image ... a pixel element into which a portion of the scaled image is mapped corresponds to determines a luminance level of the first pixel based on the arrangement pattern).

Lui discloses all of the claimed limitations as stated above in claim 1, except that the plurality of elements include a first element and a second element neighboring the first element; a value of the first element indicates that the basic portion is assigned to a sub-pixel relating to the first element; a value of the second element indicates that the basic portion is not assigned to a sub-pixel relating to the second element. However, Koyama teaches a bitmap formed of bits and a bit have a value of "1" corresponding to a black area of a character, and a value of "0" corresponding to a white area of the character (pg. 8 [0006] first 5 lines, [0160] last 8 lines, [0161] last 6 lines; bitmap corresponds to arrangement pattern; each bit corresponds to plurality of elements;

D(x,y) corresponds to first element; N(1,0) corresponds to second element; a dot corresponding to a portion of the character is represented by a bit having a value of "1"/ when the bit D(x,y) ... sub-pixel for the basic portion corresponds to a value of the first element indicates that the basic portion is assigned to a sub-pixel relating to the first element; a dot not corresponding to a portion of the character is represented by a bit having a value of "0"/when the bit D(x,y) has a value of "0" ... basic portion corresponds to a value of the second element indicates that the basic portion is not assigned to a sub-pixel relating to the second element). Therefore, it would have been obvious to one of ordinary skill in the art at the time the present invention was made to use the relation between the bits and the basic portion assigned to a corresponding sub-pixel as taught by Koyama into the system of Lui to determine the value of each bit of the bitmap, and thus displaying a character with high quality and high definition.

The combination of Lui and Koyama discloses all of the claimed limitations as stated above, except that the luminance level of the first pixel is determined based on another arrangement pattern which is modified from said arrangement pattern such that a value of the first element is interchanged with a value of the second element. However, Desai teaches a method of providing morphological transformation of an image by rearranging pixels of the image (col. 2 lines 21-25, 34-35; image corresponds to character; rearranged corresponds to modified; intermediate image corresponds another arrangement pattern; pixels from selected "neighborhoods", or regions, of the source image are rearranged corresponds to another arrangement pattern which is modified from said arrangement pattern such that a value of the first element is

interchanged with a value of the second element; pixel intensity value of selected rank corresponds to luminance level of the pixel). Therefore, it would have been obvious to one of ordinary skill in the art at the time the present invention was made to use the method of morphological transformation of an image as taught by Desai into the system of the combination of Lui and Koyama for morphological transformation of images to provide fast, accurate and flexible morphological vision tools.

12. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lui and Koyama, and further in view of Tezuka et al. (US Pub. No. 2002/0008714; hereinafter referred to as Tezuka).

13. Regarding claim 3, Lui teaches the control section that determines a luminance level of the first pixel based on an arrangement pattern (col. 18 lines 54-63, col. 19 lines 27-30; Graphic Display Interface process including the scan conversion process corresponds to the control section; bitmap image/image corresponds to an arrangement pattern; pixels corresponds to plurality of elements; a pixel element corresponds to the first pixel; the element; luminous intensity values corresponds to values; luminance intensity levels corresponds to luminance level; the same portion of an image ... a pixel element into which a portion of the scaled image is mapped corresponds to determines a luminance level of the first pixel based on the arrangement pattern).

Lui discloses all of the claimed limitations as stated above in claim 1, except that the plurality of elements include a first element and a second element neighboring the first element; a value of the first element indicates that the basic portion is assigned to a sub-pixel relating to the first element; a value of the second element indicates that the

basic portion is not assigned to a sub-pixel relating to the second element. However, Koyama teaches a bitmap formed of bits and a bit have a value of "1" corresponding to a black area of a character, and a value of "0" corresponding to a white area of the character (pg. 8 [0006] first 5 lines, [0160] last 8 lines, [0161] last 6 lines; bitmap corresponds to arrangement pattern; each bit corresponds to plurality of elements; D(x,y) corresponds to first element; N(1,0) corresponds to second element; a dot corresponding to a portion of the character is represented by a bit having a value of "1"/ when the bit D(x,y) ... sub-pixel for the basic portion corresponds to a value of the first element indicates that the basic portion is assigned to a sub-pixel relating to the first element; a dot not corresponding to a portion of the character is represented by a bit having a value of "0"/when the bit D(x,y) has a value of "0" ... basic portion corresponds to a value of the second element indicates that the basic portion is not assigned to a sub-pixel relating to the second element). Therefore, it would have been obvious to one of ordinary skill in the art at the time the present invention was made to use the relation between the bits and the basic portion assigned to a corresponding sub-pixel as taught by Koyama into the system of Lui to determine the value of each bit of the bitmap, and thus displaying a character with high quality and high definition.

The combination of Lui and Koyama discloses all of the claimed limitations as stated above, except that another arrangement pattern is formed by modifying said arrangement pattern such that a value of the second element is changed to indicate that the basic portion is assigned to the sub-pixel relating to the second element. However, Tezuka teaches a target pixel is shifted by one pixel (pg. 9 [0189], pg. 10 [0207] last 3

lines; target pixel corresponds to the first pixel; next target pixel corresponds to the second pixel; bits corresponding to the target pixels corresponds to the first element; bits corresponding to the next target pixels corresponds to the second element; RGB value corresponds to the value of the first element; next RGB value corresponds to the value of the second element; shift corresponds to modified; target pixel is shifted corresponds to another arrangement pattern is formed by modifying said arrangement pattern; target pixel is shifted for this next target pixel corresponds to the basic portion is assigned to the sub-pixel relating to the second element). Therefore, it would have been obvious to one of ordinary skill in the art at the time the present invention was made to use the process as described by Tezuka into the system of the combination of Lui and Koyama to eliminate the color irregularities in character display, and thus display of high quality is performed at a high speed.

14. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lui and Koyama, and further in view of Hill et al. (US Patent No. 6,243,070; hereinafter referred to as Hill).

15. Regarding claim 4, the combination of Lui and Koyama discloses all of the claimed limitations as stated above, except that control section determines the luminance level of the first pixel based on a combination of a color of the character and a background color of the character and the arrangement pattern. However, Hill teaches scan conversion method that generates a bitmap image where "on" means the intensity value associated with the pixel sub-component produces the specified foreground color, and "off" means the intensity value associated with the pixel sub-component produces

the specified background color (col. 16 lines 10-14, lines 20-37; scan conversion method corresponds to control section; bitmap image/bitmap corresponds to arrangement pattern; "on"/"off" corresponds to values associated with the bits of the bitmap image; intensity value corresponds to luminance level; specified foreground color corresponds to color or the character; specified background color corresponds to background color of the character; pixel corresponds to first pixel). Therefore, it would have been obvious to one of ordinary skill in the art at the time the present invention was made to use the scan conversion method of Hill into the system of the combination of Lui and Koyama to process and adjust the luminous level of pixels representing a bitmapped image, and thus reducing color distortions introduced into an image.

16. Regarding claim 5, the combination of Lui and Koyama discloses all of the claimed limitations as stated above, except that control section compares a combination of a color of the character and a background color of the character with a combination of a predetermined character color and a predetermined background color, and determines the luminance level of the first pixel based on a result of the comparison and the arrangement pattern. However, Hill teaches scan conversion method where the luminous intensity of both a foreground and background colored pixel is determined, and portions of the image are compared to the desired foreground and background colors (col. 19 lines 29-37, col. 20 lines 7-9, col. 23 lines 58-67, col. 24 lines 1-13; image/bitmap image corresponds to arrangement pattern; foreground color corresponds to color of the character; background color corresponds to background color of the character; color of the current pixel corresponds to a combination of a color of the

character and a background color of the character; desired foreground color/foreground color pixel corresponds to predetermined character color; background color pixel corresponds to predetermined background color; examined to determine how far away corresponds to compares; luminous intensity/intensity/intensity values corresponds to luminance level; current pixel corresponds to first pixel; adjustments in the intensity values corresponds to determines the luminance level). Therefore, it would have been obvious to one of ordinary skill in the art at the time the present invention was made to use the scan conversion method of Hill into the system of the combination of Lui and Koyama to process and adjust the luminous level of pixels representing a bitmapped image, and thus reducing color distortions introduced into an image.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jwalant Amin whose telephone number is 571-272-2455. The examiner can normally be reached on Monday - Friday 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on 571-272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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